

Animated cartoon video on the behavioral response to pain perception: children undergoing surgical dressing

Suchismita Pahantasingh,

Assistant Professor, SUM Nursing College, Siksha 'O' Anusandhan (Deemed to be University), Bhubaneswar, Odisha, India. (First and Corresponding author: Email Address: pahantasingh.suchismita@gmail.com)

Jhunilata Pradhan,

Assistant Professor, SUM Nursing College, Siksha 'O' Anusandhan (Deemed to be University), Bhubaneswar, Odisha, India.

Madhusmita Swain,

Former BSc. Nursing Student, SUM Nursing College, Siksha 'O' Anusandhan (Deemed to be University), Bhubaneswar, Odisha, India.

Tapaswini Das,

Former BSc.Nursing Student, SUM Nursing College, Siksha 'O' Anusandhan (Deemed to be University), Bhubaneswar, Odisha, India.

Abstract: Objectives: To find out the effect of “animated cartoon” on behavioral response to pain perception among children undergoing surgery. **Methods:** A quantitative research approach with a quasi-experimental design was used to conduct the current study. 60 numbers of samples were selected by purposive sampling technique (30 in each interventional and control group) ages 3-6 years of children undergoing surgical dressing, admitted in the surgical unit of IMS and SUM Hospital, Bhubaneswar. During the surgical dressing “Animated cartoon” video was played and shown to the experimental group. The behavioral response to pain perception was measured by the “FLACC” behavioral pain assessment tool. **Result:** As per the statistical analysis in the experimental group 46.6% of the samples were having a moderate level of pain whereas in the control group 53.3% of samples were having moderate pain. The mean and standard deviation of the score of behavioral response to pain perception in the interventional and control group were 2.83 ± 1.36 and 1.7 ± 1.9 at $p > 0.0001$ respectively. The inferential statistics t-test analysis showed that animated video cartoons can be an effective diversion method for reducing pain. **Conclusion:** Animated cartoon video is an effective method of pain reduction among children undergoing surgery.

Keywords: Animated cartoon video, pain perception, children, surgical dressing.

Introduction

In hospital pain related to the procedure can be attached with negative emotional and psychological implications is experienced by the children and that is unpredictable and severe enough.³ Actual and potential tissue damage occurs due to pain and always associated with obnoxious sensory and psychological experience attached to tangible and or possible tissue injury. During childhood, the pain management involves both medicinal and non-medicinal interventions.¹ Distraction method is one type of alternative method of pain management for children undergoing surgical dressing. During surgical dressing, the child may experience pain and that can raise the level of anxiety. stress and severe pain can affect the healing process which leads to prolong healing time and maximum financial cost.^{2,3}

Though the children have different temperament can be easily distracted by different diversional methods such as play, game, television, radio etc.can be more effective to decrease the pain during clinical procedures.⁴ The attention of the children can be diverted from the clinical procedure, pain, psychological thought of pain to a neutral stimulus through distraction technique. Two types of distractions are there one is active and another one is a passive distraction. Inactive distraction the child engages himself/ herself in an activity during a procedure such as video games which will stimulate senses. The child observes the stimulus in passive distraction instead of directly involved in the activity like audiovisual such as music listening and watching Television.^{5,6}

Cartoon movies which are simple, pertinent and economical diversion methods seem to be satisfactorily powerful to decrease the stress of burned children during surgical dressing change. Thus the researcher in this study is, intended to use cartoon animation show, an audiovisual aid as a distracter among children undergoing surgical dressing.⁷

Material and methods

A quasi-experimental design with a quantitative research approach was used to determine the effect of “animated video cartoon” on pain perception. The study was conducted at the pediatric surgical unit of IMS and SUM Hospital, Bhubaneswar. After obtaining permission from ethical board data were collected. Samples of 60 children ages 3-6 years were selected by a purposive sampling technique that is admitted in the surgical unit of IMS and SUM Hospital, Bhubaneswar. Throughout the dressing “animated cartoon” video was played in the test group. After surgical dressing by applying FLACC scale pain was measured in two groups. The tool used for data collection were socio-demographic Performa and FLACC behavior pain scale to assess the pain. The scale has five items such as leg movement, facial expression, activity, cry and consolability. The reliability of the tool was done through cronbach alpha i.e 0.9 and the tool was found reliable. The data were analyzed by using SPSS version 20 and data were collected from 06/06/2017 to 07/07/2017.

Result

A total of 60 numbers of children were participated in the study and from which 30 in interventional and 30 in non-experimental group. Maximum study samples in the experimental and control group (40%,50%) were 6 years. Maximum children were male (66.6%, 56.6%) and having two numbers of siblings (60%, 50%), previously hospitalized (20%, 40%) for 5-7 days (80%,60%) with no surgical history (86.6, 76%%) respectively (Table-1). Data on pain perception shows in the test group were 6.6% (relaxed), 26.6% (Mild pain), 46.6% (Moderate pain) and 20% (severe pain) whereas in the control group 13.3 %, 53.3%, 23.3 % of study

samples were having mild, moderate and severe pain respectively (Table-2). The mean and standard deviation of the score of behavioral response to pain perception in the interventional and control group were 2.83 ± 1.36 and 1.7 ± 1.9 at $p > 0.0001$ respectively (Table-3). Chi-square analysis shows a strong significant association of level of pain perception with age, number of siblings and history of previous hospitalization except gender, duration of hospitalization and previous history of surgery.

Discussion

The current study found that “animated video” cartoons can be an effective distraction method on behavioral response to pain perception. In the present study level of pain perception shows in the experimental group were 6.6% (relaxed), 26.6% (Mild pain), 46.6% (Moderate pain) and 20% (severe pain) whereas in the control group 13.3%, 53.3%, 23.3% of study samples were having mild, moderate and severe pain respectively which is supported by another study done by Jeena James 2012 that 8%, 50% and 42% of study samples had Mild, moderate and severe pain during venipuncture.⁶

In the present study, the mean and standard deviation of the score of behavioral response to pain perception in the experimental was 2.83 ± 1.36 at $p > 0.0001$ which is supported by another similar study shows that cartoon animation was very effective in reducing pain in children both during and after surgical dressing as mean pain score was 1.32 ± 0.77 .⁷

In the current study, the pain perception was significantly associated with the age of the child, number of siblings and previous hospitalization but the study result is contrasted with another study that in the experimental group there was no statistically significant association of socio-demographic variables with the pain.⁸⁻¹¹

Conclusion

The present study concludes, animated video cartoons can be an effective means of reducing pain among children during surgical dressing. Hence there is a need for further research on this subject with a larger sample which would generalize the understanding and can be an alternative method for reducing pain.

Funding: None

Ethical statement- This study was approved by the institutional ethical committee and prior consent of the patient was taken before the data collection.

Conflict of interest- The authors declare that there is no conflict of interest.

References

- [1] Caprilli S, Anastasi F, Grotto RPL, et al. Interactive music as a treatment for pain and stress in children during venipuncture: A randomized prospective study. *J Developmental Behavioral Pediatrics* 2007; 28(5), 399–403.
- [2] Uman LS, Chambers CT, McGrath PJ, et al. Psychological interventions for needle-related procedural pain and distress in children and adolescents. *Cochrane Database Systemic Review* 2006;(4):CD005179.
- [3] Landolt MA, et al. Does Cartoon Movie Distraction Decrease Burned Children's Pain Behavior? *J Burn Care & Rehabilitation*, 2002; 23 (1): 62-65.

- [4] Dorathy Marlow, Textbook of Pediatric Nursing; 6th edition, Elsevier health science publication 2006; p: 286-295
- [5] Elrazek AA, Hassan, A. Effect of Virtual Reality Technology on Pain during Dressing Change among Children with Burn injuries. 2019; 8(6), 37–46.
- [6] James J, Ghai S, Rao KLN, Sharma N. Effectiveness of ““Animated Cartoons”” as a distraction strategy on behavioral response to pain perception among children undergoing venipuncture. Nursing Midwifery Res J 2012; 8(3), 198–209.
- [7] Maharjan S, Uma MB, Maharjan M. Effectiveness of Animated Cartoon as a Distraction Strategy on Level of Pain among Children Undergoing Venipuncture at Selected Hospital Research Officer (CREHPA). Int J Health Sci & Res 2017; 7(8), 248.
- [8] Malone A. The effects of live music on the distress of pediatric patients receiving intravenous starts, venipuncture, injections. J Music Ther. 1996;13:19–33.
- [9] Muthuguruvu P. A comparative study to assess the effectiveness of Cartoon animation, music therapy & kaleidoscope on Pain reduction during surgical dressing among Children aged 4-12 at psg hospitals, Coimbatore. 2016; Retrieved from <http://repository-tnmgrmu.ac.in/2507/>
- [10] Nilsson S. Finnstrom B. Kokinsky E. Enskar K. The use of virtual reality for needle-related procedural pain and distress in children and adolescents in a paediatric oncology unit. European J Oncol Nursing 2009; 13: 102-109.

Table 1. Socio-demographic data N=60

Age in (Yrs)	Experimental Group %	Control Group %
4 yrs	26.6	13.4
5 yrs	33.4	36.6
6 yrs	40	50
Sex		
Male	66.6	56.6
Female	33.3	43.3
No. of siblings		
1	26.6	43.3
2	60	50
>3	1.3	6.6
History of previous Hospitalization		
Yes	20	40
No	80	60
Duration of Hospitalization		
1-2 days	Nil	Nil
3-4 days	20	40
5-7 days	80	60
Previous history of any surgery		
Yes	13.3	23.3
No	86.6	76.6

Table 2 : Pain perception in interventional and non-experimental group

N=60

Pain perception level	Experimental group		Control Group	
	Pretest score %	Post-test score %	Pretest score %	Post-test score %
Relaxed	3.3	6.6	Nil	Nil
Mild pain	3.3	26.6	3.3	13.3
Moderate pain	30	46.6	30	53.3
Severe pain	63.3	20	63.3	23.3

Table 3. Effect of animated video cartoon on pain perception

N=60

Items	mean	Sd	Paired t-test	df	p value
Experimental Group	2.83333	1.366681	11.35511	29	0.0001*

Table 4. Data on chi square test

N=60

Sl no	Demographic variables	χ^2	p
1	Age	8.065285	0.177*
2	Gender	0.261102	0.673
3	No. of sibling	7.680891	0.0215*
4	Previous hospitalization	1.071429	0.0036*
5	Duration of hospitalization	0.816327	0.6649
6	Previous surgery	0.395062	0.5297